Forest Health Protection
Pacific Southwest Region

Date: September 14, 2018
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To: Patricia Grantham, Supervisor Klamath National Forest

Subject: East Fork Scott Project, Scott/Salmon Ranger Districts (FHP Report No. N18-09)

At the request of Marissa Jones, Forester, a site visit was made to Unit 501-10 of the East Fork Scott Project site, approximately 12 miles west of Weed, on May 26, 2017. This unit is to be her Silviculture Certification Stand. The objectives were to assess the current stand conditions for insect and disease activity. Marissa Jones, Roger Siemers (Klamath NF), Pete Angwin and Cynthia Snyder (FHP) attended.

Background

Unit 501-10 is part of the East Fork Scott Landscape Project which includes plantations and natural stands between Lovers Leap and Kangaroo Lake (T40N R7W Sects. 32, 33, 34, 8, 9, 10, and 16), approximately 7 miles east-northeast of Callahan. GPS coordinates for the unit are N41° 25.555', W122° 37.354'. Elevation is at 5,148 ft. Primary management emphasis is for wood products (matrix), with secondary objectives of enhancing visuals and wildlife.

Unit 501-10 is an 80 acre two-story stand of Jeffrey and ponderosa pine, 150 and 80 years old, with scattered Douglas-fir and a few incense cedar and juniper. The stand was scheduled for group selections in 1987-1989, but these treatments were never done.

Observations

The current basal area of the unit ranges from about 160 to 260 ft^2/acre, with widespread stocking and diameters ranging from 8-20 inches. The understory consists of pine saplings with some incense cedar, juniper, and mountain mahogany. While on the site, Roger Siemers cored one of the larger overstory pines and found that it was approximately 213 years old.

Western dwarf mistletoe (*Arceuthobium campylopodum*) is widespread throughout the unit, infecting the ponderosa and Jeffrey pine (Figures 1 and 2). Variability in the intensity and distribution of dwarf mistletoe is high. In some areas, tree dwarf mistletoe ratings (DMRs, which indicate a range in the level of dwarf mistletoe infection from 0 to 6) are predominantly 4-6, in others they are 1-2, while some areas are free of the

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pathogen (DMR = 0). In several areas, understory infection levels are high, as infected overstory trees have rained down dwarf mistletoe seeds from above.

Some scattered single trees have been killed by drought and flat headed wood borers. Twig beetles (*Pityophthorus* sp.) are causing scattered top kill and branch dieback.

Figures 1 and 2. Western dwarf mistletoe (*Arceuthobium campylopodum*) in ponderosa pine in **Unit 501-10 of the East Fork Scott Landscape Project**

Discussion

Overall, Unit 501-10 is overstocked for such a dry, drought-prone area. Dwarf mistletoe is just another stressor that can lead to increased mortality.

According to Marissa and Roger, plans are to implement a commercial thin and/or group selection treatment, with the objectives of increasing tree vigor and drought-tolerance by reducing overall stand density and dwarf mistletoe levels. If properly planned and laid out, while taking the dwarf mistletoe into account, the proposed treatment has the potential to meet these objectives. Thinning should be done as a "sanitation thin", removing as many infected commercial and non-commercial-sized trees as possible. At best, the treatment will leave only non-host (incense cedar, juniper and Douglas-fir) and uninfected or lightly-infected (DMR = 1 or 2) host (Jeffrey and ponderosa pine) trees. Infected overstory trees, which have the ability to rain dwarf mistletoe seeds onto the understory trees and regeneration, should have high priority for removal. Group selections can be particularly effective if placed where dwarf mistletoe infection levels are highest. Again, any trees are left in the groups should be non-host species (Douglas-fir, incense cedar or juniper), or uninfected or lightly-infected Jeffrey or ponderosa pine (DMR 0, 1 or 2). To the greatest extent possible, borders of the groups should be free of dwarf mistletoe, consisting of non-host or uninfected or at worst, lightly infected (DMR 0, 1 or 2) host trees. Positioning the groups alongside natural clearings or breaks (Figure 3), or by installing host-free buffer strips that separate infested and uninfested areas can also help prevent the reinvasion of dwarf mistletoe into the groups. If buffer strips are installed, they should be at least 25-30-feet wide. Finally, in order to reduce the raining down of dwarf mistletoe seed from infected overstory trees to vulnerable host trees below, it is best if the treatment strives to move the current stand structure from two stories to a single story.

Figure 3. A natural break between heavily infested (left) and lightly infested (right ponderosa pines in Unit 501-10 of the East Fork Scott Landscape Project

Overall, the objective of the treatment will be to increase tree vigor and significantly reduce the incidence and impacts of dwarf mistletoe. Complete eradication of the dwarf mistletoe will not be possible (unless the Unit is cleared of all ponderosa and Jeffrey pines, which is not an objective of the project).

If any post-treatment planting is done, favor non-host species such as Douglas-fir, sugar pine, juniper and incense cedar.

Because the intensity and distribution of the dwarf mistletoe is highly variable, marking the Unit will be somewhat complex. This would be best laid out on the ground, following clear guidelines that reflect the recommendations stated above. A presuppression survey would help in developing the guidelines.

To assist Marissa with this endeavor, I supplied her with several reference books and online links that explain the biology and management of dwarf mistletoes. As always, I'm available to provide additional information and support.

If you have any questions regarding this report, please contact me at 530-226-2436, or Cynthia Snyder at 530-226-2437.

/s/ Pete Angwin

CC: Marissa Jones, Ben Haupt, Cynthia Snyder, Phil Cannon